

MR1035-1386
Application Serial No. 10/777,168
Responsive to Office Action dated 24 November 2004

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 24 November 2004. Responsive to the objections and rejection made in the outstanding Official Action, Claims 1, 16, 19, and 20 have been amended to clarify the language thereof and Claim 23 has been amended to clarify the combination of elements that form the invention of the subject Patent Application..

In the Official Action, the Examiner has objected to Claims 1, 2 and 16 as being not clearly supported by the specification. The Examiner's reference to Claim 2 is believed to be an error, as the terminology objected too is actually found in Claim 1. The Examiner kindly suggested changes to the claims in order to bring the claims into condition for allowance. The Examiner also objected to Claims 19 and 20 as lacking proper antecedent basis for the term "said mirrors [found in Claims 21 and 22 which are dependent on Claims 19 and 20, respectively]". Again, the Examiner kindly suggested changes to the claims in order to bring the claims into condition for allowance.

Claims 1, 16, 19 and 20 have been amended as suggested by the Examiner to overcome the objections made in the Official Action.

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In the Official Action, the Examiner rejected Claim 23 under 35 U.S.C. § 102(b), as being anticipated by Hatanaka et al., U.S. Patent #5,451,103. It is respectfully submitted that Claim 23 now claims the first dichroic beam splitter/combiner being disposed in a non-orthogonal crossed arrangement with the second dichroic beam splitter/combiner, which is not disclosed nor suggested by Hatanaka et al. In fact, the reference teaches away from that arrangement in that it requires the crossed dichroic elements 4A and 4B to be substantially perpendicular. Therefore, as the reference fails to disclose each and every one of the elements of the claimed invention, it cannot anticipate that invention. Further, as Hatanaka et al. does not suggest the claimed combination of elements, and in fact teaches away from that combination, it cannot make obvious that invention either.

The referenced embodiment with crossed dichroic elements is an on-axis design, wherein the incident light and the light reflected by the light valve travel the same path. In order to separate the light reflected by the light valve from the incident light so that the light reflected by the light valve can impinge onto the projection lens, the reference requires the polarization beam splitter 3. The polarization beam splitter 3 needs to perform polarization separation of the three primary colors (R, G, and B) at the same time, requiring a coating that is very difficult to make and very difficult to achieve good polarization separation, resulting in deterioration of the image quality. Thus, obviating

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any gain in improved color balance achieved by a reduction in the difference between the angle of incidence and the angle of reflection.

Whereas, the instant invention is of an off-axis design; wherein, the incident light and the light reflected by the light valve travel different paths. In the invention of the subject Patent Application a polarization beam splitter is thus not required and its deleterious effect on image quality is avoided.

In the reference, the incident light and the light reflected by the light valve are co-axial with respect to the two dichroic beam splitters/combiners 4A and 4B. The incident light and the light reflected by the light will thus pass the central interface line at the joint of the elements 4A and 4B. If the central interface line of elements 4A and 4B is not thin enough, it will be projected onto the screen so that a line will appear at the center of the image. As there is a demand for high resolution imaging, the central interface line of elements 4A and 4B will be required to be very thin, which is difficult to achieve and costly.

While in the invention of the subject Patent Application, neither the incident light nor the light reflected by the light valve passes through the region of the central interface line between the two dichroic beam splitters/combiners. Therefore, the problem of the central interface line being projected onto the screen is avoided. Because the central interface line is not projected onto the screen, the cost of crossed dichroic beam splitters/combiners is lower and the yield and resulting image quality is greater than that

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for the corresponding elements in the referenced system. Thus, the system of the invention of the subject Patent Application is more efficient than the system of ~~Hatanaka~~ et al.

For all the foregoing reasons, it is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,



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2/24/2005
Date